SEQUENCE LISTING

(1) GENERAL INFORMATION:

    (i) APPLICANT: GUERIN-MARCHAND, Claudine
                  DRUILHE, Pierre

   (ii) TITLE OF INVENTION: PEPTIDE SEQUENCES SPECIFIC FOR THE
        HEPATIC STAGES OF P. FALCIPARUM BEARING EPITOPES CAPABLE
        OF STIMULATING THE T LYMPHOCYTES

  (iii) NUMBER OF SEQUENCES: 46

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    (v) COMPUTER READABLE FORM:
        (A) MEDIUM TYPE: Floppy disk
        (B) COMPUTER: IBM PC compatible
        (C) OPERATING SYSTEM: PC-DOS/MS-DOS
        (D) SOFTWARE: PatentIn Release #1.0, Version #1.30

   (vi) CURRENT APPLICATION DATA:
        (A) APPLICATION NUMBER: US 08/462,625
        (B) FILING DATE: 05-JUN-1995
        (C) CLASSIFICATION:

  (vii) PRIOR APPLICATION DATA:
        (A) APPLICATION NUMBER: US 08/098,327
        (B) FILING DATE: 24-NOV-1993

  (vii) PRIOR APPLICATION DATA:
        (A) APPLICATION NUMBER: FR 91 01286
        (B) FILING DATE: 05-FEB-1991

 (viii) ATTORNEY/AGENT INFORMATION:
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        (C) REFERENCE/DOCKET NUMBER: 010830-078

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(2) INFORMATION FOR SEQ ID NO:1:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single

         (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
         (A) NAME/KEY: Peptide
         (B) LOCATION: 8
         (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is
              Glu or Gly."

     (x) PUBLICATION INFORMATION:
         (H) DOCUMENT NUMBER: WO 92/13884
         (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

    Leu Ala Lys Glu Lys Leu Gln Xaa Gln Gln Ser Asp Leu Glu Gln Glu
    1   5   10   15

    Arg

(2) INFORMATION FOR SEQ ID NO:2:

    (i) SEQUENCE CHARACTERISTICS:
         (A) LENGTH: 17 amino acids
         (B) TYPE: amino acid
         (C) STRANDEDNESS: single
         (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
         (A) NAME/KEY: Peptide
         (B) LOCATION: 1
         (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is
              Ser or Arg."

    (ix) FEATURE:
         (A) NAME/KEY: Peptide
         (B) LOCATION: 6
         (D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is
              Glu or Asp."

    (ix) FEATURE:
         (A) NAME/KEY: Peptide
         (B) LOCATION: 8
         (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is
              Arg or Leu."

    (ix) FEATURE:
         (A) NAME/KEY: Peptide
         (B) LOCATION: 15
         (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa
              is Glu or Gly."

     (x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```
Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln
1               5                   10                  15

Gln
```

(2) INFORMATION FOR SEQ ID NO:3:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 2
        (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is
            Ser or Arg."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 7
        (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
            Glu or Asp."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 9
        (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is
            Arg or Leu."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 16
        (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
            is Glu or Gly."

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```
Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa
1               5                   10                  15

Gln
```

(2) INFORMATION FOR SEQ ID NO:4:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 3
        (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is
                Ser or Arg."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 8
        (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is
                Glu or Asp."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 10
        (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa
                is Arg or Leu."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 17
        (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa
                is Glu or Gly."

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

    Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln
    1   5   10   15

    Xaa

(2) INFORMATION FOR SEQ ID NO:5:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 1

```
        (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is
                Glu or Gly."

  (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 4
        (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is
                Ser or Arg."

  (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 9
        (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is
                Glu or Asp."

  (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 11
        (D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa
                is Arg or Leu."

  (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

 Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu
 1               5                   10              15

 Gln

(2) INFORMATION FOR SEQ ID NO:6:

  (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

 (ii) MOLECULE TYPE: peptide

  (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 2
        (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is
                Glu or Gly."

  (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 5

        (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
                Ser or Arg."

  (ix) FEATURE:
```

```
          (A) NAME/KEY: Peptide
          (B) LOCATION: 10
          (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa
                  is Glu or Asp."

    (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 12
          (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa
                  is Arg or Leu."

     (x) PUBLICATION INFORMATION:
          (H) DOCUMENT NUMBER: WO 92/13884
          (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

    Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys
    1               5                   10                  15

    Leu

(2) INFORMATION FOR SEQ ID NO:7:

    (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 17 amino acids
          (B) TYPE: amino acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

   (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 3
          (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is
                  Glu or Gly."

   (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 6
          (D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is
                  Ser or Arg."

   (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 11
          (D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa
                  is Glu or Asp."

   (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 13
          (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa
                  is Arg or Leu."
```

(x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

```
Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu
1               5                   10              15
```

Lys

(2) INFORMATION FOR SEQ ID NO:8:

     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 17 amino acids
          (B) TYPE: amino acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: peptide

     (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 4
          (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is
               Glu or Gly."

     (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 7
          (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
               Ser or Arg."

     (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 12
          (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa
               is Glu or Asp."

     (ix) FEATURE:
          (A) NAME/KEY: Peptide
          (B) LOCATION: 14
          (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa
               is Arg or Leu."

     (x) PUBLICATION INFORMATION:
          (H) DOCUMENT NUMBER: WO 92/13884
          (J) PUBLICATION DATE: 20-AUG-1992

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

```
Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys
1               5                   10              15
```

Glu

(2) INFORMATION FOR SEQ ID NO:9:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 5
        (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
            Glu or Gly."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 8
        (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is
            Ser or Arg."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 13
        (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa
            is Glu or Asp."

    (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 15
        (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa
            is Arg or Leu."

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala
1   5   10   15

Lys

(2) INFORMATION FOR SEQ ID NO:10:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (ix) FEATURE:

```
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 6
            (D)  OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is
                     Glu or Gly."

      (ix) FEATURE:
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 9
            (D)  OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is
                     Ser or Arg."

      (ix) FEATURE:
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 14
            (D)  OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa
                     is Glu or Asp."

      (ix) FEATURE:
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 16
            (D)  OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
                     is Arg or Leu."

      (x) PUBLICATION INFORMATION:
            (H)  DOCUMENT NUMBER: WO 92/13884
            (J)  PUBLICATION DATE: 20-AUG-1992

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

     Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa
     1               5                   10                  15

     Ala

(2) INFORMATION FOR SEQ ID NO:11:

       (i) SEQUENCE CHARACTERISTICS:
            (A)  LENGTH: 17 amino acids
            (B)  TYPE: amino acid
            (C)  STRANDEDNESS: single
            (D)  TOPOLOGY: linear

      (ii) MOLECULE TYPE: peptide

      (ix) FEATURE:
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 7
            (D)  OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
                     Glu or Gly."

      (ix) FEATURE:
            (A)  NAME/KEY: Peptide
            (B)  LOCATION: 10
            (D)  OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa
                     is Ser or Arg."
```

```
(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 15
     (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa
             is Glu or Asp."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 17
     (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa
             is Arg or Leu."

 (x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg
1               5                   10                  15

Xaa
```

(2) INFORMATION FOR SEQ ID NO:12:

```
 (i) SEQUENCE CHARACTERISTICS:
     (A) LENGTH: 17 amino acids
     (B) TYPE: amino acid
     (C) STRANDEDNESS: single
     (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 1
     (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is
             Arg or Leu."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 8
     (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is
             Glu or Gly."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 11
     (D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa
             is Ser or Arg."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 16
     (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
             is Glu or Asp."
```

(x) PUBLICATION INFORMATION:
    (H) DOCUMENT NUMBER: WO 92/13884
    (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa
1   5   10   15

Arg

(2) INFORMATION FOR SEQ ID NO:13:

  (i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 17 amino acids
    (B) TYPE: amino acid
    (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: peptide

  (ix) FEATURE:
    (A) NAME/KEY: Peptide
    (B) LOCATION: 2
    (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is
        Arg or Leu."

  (ix) FEATURE:
    (A) NAME/KEY: Peptide
    (B) LOCATION: 9
    (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is
        Glu or Gly."

  (ix) FEATURE:
    (A) NAME/KEY: Peptide
    (B) LOCATION: 12
    (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa
        is Ser or Arg."

  (ix) FEATURE:
    (A) NAME/KEY: Peptide
    (B) LOCATION: 17
    (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa
        is Glu or Asp."

  (x) PUBLICATION INFORMATION:
    (H) DOCUMENT NUMBER: WO 92/13884
    (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln
1   5   10   15

Xaa

(2) INFORMATION FOR SEQ ID NO:14:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

   (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 1
        (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is
            Glu or Asp."

   (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 3
        (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is
            Arg or Leu."

   (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 10
        (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa
            is Glu or Gly."

   (ix) FEATURE:
        (A) NAME/KEY: Peptide
        (B) LOCATION: 13
        (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa
            is Ser or Arg."

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu
1   5   10   15

Gln

(2) INFORMATION FOR SEQ ID NO:15:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 17 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

   (ix) FEATURE:

            (A) NAME/KEY: Peptide
            (B) LOCATION: 2
            (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is
                Glu or Asp."

      (ix) FEATURE:
            (A) NAME/KEY: Peptide
            (B) LOCATION: 4
            (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is
                Arg or Leu."

      (ix) FEATURE:
            (A) NAME/KEY: Peptide
            (B) LOCATION: 11
            (D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa
                is Glu or Gly."

      (ix) FEATURE:
            (A) NAME/KEY: Peptide
            (B) LOCATION: 14
            (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa
                is Ser or Arg."

      (x) PUBLICATION INFORMATION:
            (H) DOCUMENT NUMBER: WO 92/13884
            (J) PUBLICATION DATE: 20-AUG-1992

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu
1   5   10   15

Glu

(2) INFORMATION FOR SEQ ID NO:16:

      (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 17 amino acids
            (B) TYPE: amino acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: peptide

     (ix) FEATURE:
            (A) NAME/KEY: Peptide
            (B) LOCATION: 3
            (D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is
                Glu or Asp."

     (ix) FEATURE:
            (A) NAME/KEY: Peptide
            (B) LOCATION: 5
            (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
                Arg or Leu."

```
(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 12
     (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa
             is Glu or Gly."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 15
     (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa
             is Ser or Arg."

 (x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp
1               5                   10                  15

Leu
```

(2) INFORMATION FOR SEQ ID NO:17:

```
 (i) SEQUENCE CHARACTERISTICS:
     (A) LENGTH: 17 amino acids
     (B) TYPE: amino acid
     (C) STRANDEDNESS: single
     (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 4
     (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is
             Glu or Asp."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 6
     (D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is
             Arg or Leu."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 13
     (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa
             is Glu or Gly."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 16
     (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa
             is Ser or Arg."
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(x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa
1   5   10   15

Asp

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:
     (A) LENGTH: 17 amino acids
     (B) TYPE: amino acid
     (C) STRANDEDNESS: single
     (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 5
     (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is
         Glu or Asp."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 7
     (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is
         Arg or Leu."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 14
     (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa
         is Glu or Gly."

(ix) FEATURE:
     (A) NAME/KEY: Peptide
     (B) LOCATION: 17
     (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa
         is Ser or Arg."

(x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln
1   5   10   15

Xaa

(2) INFORMATION FOR SEQ ID NO:19:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 107 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

   (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

```
Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly
1               5                   10              15

Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile
            20              25              30

Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser
        35              40              45

Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile
    50              55              60

Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val Glu
65              70              75              80

Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp Gly
            85              90              95

Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
            100             105
```

(2) INFORMATION FOR SEQ ID NO:20:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 117 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

   (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

```
Leu Gln Glu Gln Gln Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys
1               5                   10              15
```

```
Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp
            20              25              30

Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn
            35              40              45

Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn
    50              55              60

Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr
65              70              75              80

Asn Arg Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His
                85              90              95

Lys Gly His Leu Glu Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln
            100             105             110

Lys Glu Asp Lys Ser
            115
```

(2) INFORMATION FOR SEQ ID NO:21:

   (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 27 amino acids
       (B) TYPE: amino acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: peptide

   (x) PUBLICATION INFORMATION:
       (H) DOCUMENT NUMBER: WO 92/13884
       (J) PUBLICATION DATE: 20-AUG-1992

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

```
Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu
1               5               10              15

Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro
            20              25
```

(2) INFORMATION FOR SEQ ID NO:22:

   (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 24 amino acids
       (B) TYPE: amino acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: peptide

   (x) PUBLICATION INFORMATION:
       (H) DOCUMENT NUMBER: WO 92/13884
       (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

```
Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg Asp Leu Glu
1               5               10              15

Gln Arg Lys Ala Asp Thr Lys Lys
              20
```

(2) INFORMATION FOR SEQ ID NO:23:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 31 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

```
Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg
1               5               10              15

Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys
              20              25              30
```

(2) INFORMATION FOR SEQ ID NO:24:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 151 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

```
Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
1               5               10              15

Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
              20              25              30

Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
              35              40              45
```

```
Glu Glu Lys Val Glu Glu Ser Val Glu Glu Asn Asp Glu Glu Ser Val
    50              55              60
```

```
Glu Glu Asn Val Glu Glu Asn Val Glu Glu Asn Asp Asp Gly Ser Val
65              70              75                      80
```

```
Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile
                85              90                      95
```

```
Asp Ser Ser Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val
            100             105             110
```

```
Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Lys Cys
            115             120             125
```

```
Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val
    130             135             140
```

```
Ala Glu Met Leu Lys Glu Arg
145             150
```

(2) INFORMATION FOR SEQ ID NO:25:

  (i) SEQUENCE CHARACTERISTICS:
     (A) LENGTH: 47 amino acids
     (B) TYPE: amino acid
     (C) STRANDEDNESS: single
     (D) TOPOLOGY: linear

 (ii) MOLECULE TYPE: peptide

  (x) PUBLICATION INFORMATION:
     (H) DOCUMENT NUMBER: WO 92/13884
     (J) PUBLICATION DATE: 20-AUG-1992

 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

```
Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
1           5               10              15
```

```
Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
            20              25              30
```

```
Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln Gln His Asn
        35              40              45
```

(2) INFORMATION FOR SEQ ID NO:26:

  (i) SEQUENCE CHARACTERISTICS:
     (A) LENGTH: 26 amino acids
     (B) TYPE: amino acid
     (C) STRANDEDNESS: single
     (D) TOPOLOGY: linear

 (ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:
    (H) DOCUMENT NUMBER: WO 92/13884
    (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
1   5   10   15

Val Lys Glu Asn Ile Leu Glu Glu Ser Gln
            20   25

(2) INFORMATION FOR SEQ ID NO:27:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 27 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Ser Asn Ser Leu Val
1   5   10   15

Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
            20   25

(2) INFORMATION FOR SEQ ID NO:28:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 27 amino acids
        (B) TYPE: amino acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: peptide

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Val Glu Lys Cys Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val
1   5   10   15

Glu Glu Ser Val Ala Glu Met Leu Lys Glu Arg
            20   25

(2) INFORMATION FOR SEQ ID NO:29:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 17 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)

    (x) PUBLICATION INFORMATION:
       (H) DOCUMENT NUMBER: WO 92/13884
       (J) PUBLICATION DATE: 20-AUG-1992

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

TTGTTCTAGA TCGCTTT   17

(2) INFORMATION FOR SEQ ID NO:30:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 15 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)

    (x) PUBLICATION INFORMATION:
       (H) DOCUMENT NUMBER: WO 92/13884
       (J) PUBLICATION DATE: 20-AUG-1992

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

AAAGAAGATA AATCT   15

(2) INFORMATION FOR SEQ ID NO:31:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 316 amino acids
       (B) TYPE: amino acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: peptide

    (x) PUBLICATION INFORMATION:
       (H) DOCUMENT NUMBER: WO 92/13884
       (J) PUBLICATION DATE: 20-AUG-1992

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln
1   5   10   15

Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu Lys Leu Gln Glu
            20   25   30

Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln
            35   40   45

Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu
    50   55   60

Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
65   70   75   80

Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
            85   90   95

Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys
            100   105   110

Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
            115   120   125

Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg
    130   135   140

Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
145   150   155   160

Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
            165   170   175

Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln
            180   185   190

Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg Asp Leu Glu
            195   200   205

Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His
    210   215   220

Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala
225   230   235   240

Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln
            245   250   255

Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu
            260   265   270

Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val
            275   280   285

Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp
    290   295   300

Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
305   310   315

(2) INFORMATION FOR SEQ ID NO:32:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 950 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA (genomic)

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

```
AAAGCGATCT AGAACAAGAG AGACGTGCTA AAGAAAGTT GCAAGAACAA CAAAGCGATT      60

TAGAACAAGA TAGACTTGCT AAAGAAAAGT TACAAGAGCA GCAAAGCGAT TTAGAACAAG     120

AGAGACTTGC TAAAGAAAAG TTGCAAGAAC AACAAAGCGA TCTAGAACAA GAGAGACGTG     180

CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGAGAGACGT GCTAAAGAAA     240

AGTTGCAAGA ACAACAAAGC GATTTAGAAC AAGATAGACT TGCTAAAGAA AAGTTACAAG     300

AGCAGCAAAG CGATTTAGAA CAAGAGAGAC GTGCTAAAGA AAAGTTGCAA GAACAACAAA     360

GCGATTTAGA ACAAGAGAGA CGTGCTAAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG     420

AACAAGAGAG ACTTGCTAAA GAAAAGTTGC AAGAACAACA AAGCGATTTA GAACAAGAGA     480

GACGTGCTAA AGAAAAGTTG CAAGAACAAC AAAGCGATTT AGAACAAGAG AGACGTGCTA     540

AAGAAAAGTT GCAAGAACAA CAAAGCGATT TAGAACAAGA GAGACGTGCT AAAGAAAAGT     600

TGCAAGAGCA GCAAAGAGAT TTAGAACAAA GGAAGGCTGA TACGAAAAAA AATTTAGAAA     660

GAAAAAGGA ACATGGAGAT ATATTAGCAG AGGATTTATA TGGTCGTTTA GAAATACCAG      720

CTATAGAACT TCCATCAGAA AATGAACGTG GATATTATAT ACCACATCAA TCTTCTTTAC    780

CTCAGGACAA CAGAGGGAAT AGTAGAGATT CCAAGGAAAT ATCTATAATA GAAAAAACAA     840

ATAGAGAATC TATTACAACA AATGTTGAAG GACGAAGGGA TATACATAAA GGACATCTTG     900

AAGAAAAGAA AGATGGTTCA ATAAAACCAG AACAAAAAGA AGATAAATCT                950
```

(2) INFORMATION FOR SEQ ID NO:33:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 464 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

  (x) PUBLICATION INFORMATION:
      (H) DOCUMENT NUMBER: WO 92/13884
      (J) PUBLICATION DATE: 20-AUG-1992

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

```
GAATTCCGTG ATGAACTTTT TAATGAATTA TTAAATAGTG TAGATGTTAA TGGAGAAGTA          60

AAAGAAAATA TTTTGGAGGA AAGTCAAGTT AATGACGATA TTTTTAATAG TTTAGTAAAA          120

AGTGTTCAAC AAGAACAACA ACACAATGTT GAAGAAAAAG TTGAAGAAAG TGTAGAAGAA          180

AATGACGAAG AAAGTGTAGA AGAAAATGTA GAAGAAAATG TAGAAGAAAA TGACGACGGA          240

AGTGTAGCCT CAAGTGTTGA AGAAAGTATA GCTTCAAGTG TTGATGAAAG TATAGATTCA          300

AGTATTGAAG AAAATGTAGC TCCAACTGTT GAAGAAATCG TAGCTCCAAC TGTTGAAGAA          360

ATTGTAGCTC CAAGTGTTGT AGAAAAGTGT GCTCCAAGTG TTGAAGAAAG TGTAGCTCCA          420

AGTGTTGAAG AAAGTGTAGC TGAAATGTTG AAGGAAAGGA ATTC                          464
```

(2) INFORMATION FOR SEQ ID NO:34:

  (i) SEQUENCE CHARACTERISTICS:
      (A) LENGTH: 988 base pairs
      (B) TYPE: nucleic acid
      (C) STRANDEDNESS: single
      (D) TOPOLOGY: linear

  (ii) MOLECULE TYPE: DNA (genomic)

  (x) PUBLICATION INFORMATION:
      (H) DOCUMENT NUMBER: WO 92/13884
      (J) PUBLICATION DATE: 20-AUG-1992

  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

```
AAAGTATACA TCTTCCTTCT TTACTTCTTA AAATGAAACA TATTTTGTAC ATATCATTTT          60

ACTTTATCCT TGTTAATTTA TTGATATTTC ATATAAATGG AAAGATAATA AAGAATTCTG          120

AAAAAGATGA AATCATAAAA TCTAACTTGA GAAGTGGTTC TTCAAATTCT AGGAATCGAA          180

TAAATGAGGA AAATCACGAG AAGAAACACG TTTTATCTCA TAATTCATAT GAGAAAACTA          240

AAAATAATGA AAATAATAAA TTTTTCGATA AGGATAAAGA GTTAACGATG TCTAATGTAA          300

AAAATGTGTC ACAAACAAAT TTCAAAAGTC TTTTAAGAAA TCTTGGTGTT TCAGAGAATA          360

TATTCCTTAA AGAAAATAAA TTAAATAAGG AAGGGAAATT AATTGAACAC ATAATAAATG          420

ATGATGACGA TAAAAAAAAA TATATTAAAG GGCAAGACGA AAACAGACAA GAAGATCTTG          480
```

AAGAAAAAGC AGCTAAAGAA AAGTTACAGG GGCAACAAAG CGATTCAGAA CAAGAGAGAC   540

GTGCTAAAGA AAAGTTGCAA GAACAACAAA GCGATTTAGA ACAAGAGAGA CTTGCTAAAG   600

AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG ACGTGCTAAA GAAAAGTTGC   660

AAGAACAACA AAGCGATTTA GAACAAGAGA GACTTGCTAA AGAAAAGTTG CAAGAACAAC   720

AAAGCGATTT AGAACAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA CAAAGCGATT   780

TAGAACAAGA GAGACGTGCT AAAGAAAAGT TGCAAGAACA ACAAAGCGAT TTAGAACAAG   840

AGAGACTTGC TAAAGAAAAG TTACAAGAGC AGCAAAGCGA TTTAGAACAA GATAGACTTG   900

CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGAGAGACGT GCTAAAGAAA   960

GGTTGCAAGA ACAACAAAGC GATTTAGA   988

(2) INFORMATION FOR SEQ ID NO:35:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 12 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (x) PUBLICATION INFORMATION:
            (H) DOCUMENT NUMBER: WO 92/13884
            (J) PUBLICATION DATE: 20-AUG-1992

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

ATGAAACATA TT   12

(2) INFORMATION FOR SEQ ID NO:36:

        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 12 base pairs
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (x) PUBLICATION INFORMATION:
            (H) DOCUMENT NUMBER: WO 92/13884
            (J) PUBLICATION DATE: 20-AUG-1992

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

AAGCGATTTA GA   12

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 954 base pairs
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:
    (A) NAME/KEY: CDS
    (B) LOCATION: 1..954

(x) PUBLICATION INFORMATION:
    (H) DOCUMENT NUMBER: WO 92/13884
    (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

```
ATG AAA CAT ATT TTG TAC ATA TCA TTT TAC TTT ATC CTT GTT AAT TTA        48
Met Lys His Ile Leu Tyr Ile Ser Phe Tyr Phe Ile Leu Val Asn Leu
1               5                   10                  15

TTG ATA TTT CAT ATA AAT GGA AAG ATA ATA AAG AAT TCT GAA AAA GAT        96
Leu Ile Phe His Ile Asn Gly Lys Ile Ile Lys Asn Ser Glu Lys Asp
            20                  25                  30

GAA ATC ATA AAA TCT AAC TTG AGA AGT GGT TCT TCA AAT TCT AGG AAT       144
Glu Ile Ile Lys Ser Asn Leu Arg Ser Gly Ser Ser Asn Ser Arg Asn
        35                  40                  45

CGA ATA AAT GAG GAA AAT CAC GAG AAG AAA CAC GTT TTA TCT CAT AAT       192
Arg Ile Asn Glu Glu Asn His Glu Lys Lys His Val Leu Ser His Asn
    50                  55                  60

TCA TAT GAG AAA ACT AAA AAT AAT GAA AAT AAT AAA TTT TTC GAT AAG       240
Ser Tyr Glu Lys Thr Lys Asn Asn Glu Asn Asn Lys Phe Phe Asp Lys
65                  70                  75                  80

GAT AAA GAG TTA ACG ATG TCT AAT GTA AAA AAT GTG TCA CAA ACA AAT       288
Asp Lys Glu Leu Thr Met Ser Asn Val Lys Asn Val Ser Gln Thr Asn
                85                  90                  95

TTC AAA AGT CTT TTA AGA AAT CTT GGT GTT TCA GAG AAT ATA TTC CTT       336
Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu Asn Ile Phe Leu
            100                 105                 110

AAA GAA AAT AAA TTA AAT AAG GAA GGG AAA TTA ATT GAA CAC ATA ATA       384
Lys Glu Asn Lys Leu Asn Lys Glu Gly Lys Leu Ile Glu His Ile Ile
        115                 120                 125

AAT GAT GAT GAC GAT AAA AAA AAA TAT ATT AAA GGG CAA GAC GAA AAC       432
Asn Asp Asp Asp Asp Lys Lys Lys Tyr Ile Lys Gly Gln Asp Glu Asn
    130                 135                 140

AGA CAA GAA GAT CTT GAA GAA AAA GCA GCT AAA GAA AAG TTA CAG GGG       480
Arg Gln Glu Asp Leu Glu Glu Lys Ala Ala Lys Glu Lys Leu Gln Gly
```

```
     145                          150                          155                          160
CAA CAA AGC GAT TCA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA        528
Gln Gln Ser Asp Ser Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln
                165                      170                      175

GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA GAA AAG TTG        576
Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu Lys Leu
                180                      185                      190

CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG        624
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
            195                      200                      205

TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA GAA        672
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu
        210                      215                      220

AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT AAA        720
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys
225                      230                      235                      240

GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT        768
Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
                245                      250                      255

AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT        816
Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu
            260                      265                      270

GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAT AGA        864
Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg
        275                      280                      285

CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG        912
Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
        290                      295                      300

AGA CGT GCT AAA GAA AGG TTG CAA GAA CAA CAA AGC GAT TTA                954
Arg Arg Ala Lys Glu Arg Leu Gln Glu Gln Gln Ser Asp Leu
305                      310                      315
```

(2) INFORMATION FOR SEQ ID NO:38:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 1493 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (x) PUBLICATION INFORMATION:
        (H) DOCUMENT NUMBER: WO 92/13884
        (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

```
CAAGAACAAC AAAGCGATCT AGAACAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA      60

CAAAGCGATT TAGAACAAGA TAGACTTGCT AAAGAAAAGT TACAAGAGCA GCAAAGCGAT     120

TTAGAACAAG AGAGACTTGC TAAGAAAAGT TGCAAGAACA ACAAAGCGAT CTAGAACAAG     180

AGAGACGTGC TAAAGAAAAG TTGCAAGAAC AACAAAGCGA TTTAGAACAA GAGAGACGTG     240

CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTTAGAACA AGATAGACTT GCTAAAGAAA     300

AGTTACAAGA GCAGCAAAGC GATTTAGAAC AAGAGAGACG TGCTAAAGAA AAGTTGCAAG     360

AACAACAAAG CGATTTAGAA CAAGAGAGAC GTGCTAAGAA AAGTTGCAAG AACAACAAAG     420

CGATTTAGAA CAAGAGAGAC TTGCTAAAGA AAAGTTGCAA GAACAACAAA GCGATTTAGA     480

ACAAGAGAGA CGTGCTAAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG     540

ACGTGCTAAG AAAAGTTGCA AGAACAACAA AGCGATTTAG AACAAGAGAG ACGTGCTAAA     600

GAAAAGTTGC AAGAGCAGCA AAGAGATTTA GAACAAAGGA AGGCTGATAC GAAAAAAAAT     660

TTAGAAAGAA AAAAGGAACA TGGAGATATA TTAGCAGAGG ATTTATATGG TCGTTTAGAA     720

ATACCAGCTA TAGAACTTCC ATCAGAAAAT GAACGTGGAT ATTATATACC ACATCAATCT     780

TCTTTACCTC AGGACAACAG AGGGAATAGT AGAGATTCCA AGGAAATATC TATAATAGAA     840

AAAACAAATA GAGAATCTAT TACAACAAAT GTTGAAGGAC GAAGGGATAT ACATAAAGGA     900

CATCTTGAAG AAAAGAAAGA TGGTTCAATA AAACCAGAAC AAAAAGAAGA TAAATCTGCT     960

GACATACAAA ATCATACATT AGAGACAGTA AATATTTCTG ATGTTAATGA TTTTCAAATA    1020

AGTAAGTATG AGGATGAAAT AAGTGCTGAA TATGACGATT CATTAATAGA TGAAGAAGAA    1080

GATGATGAAG ACTTAGACGA ATTTAAGCCT ATTGTGCAAT ATGACAATTT CCAAGATGAA    1140

GAAAACATAG GAATTTATAA AGAACTAGAA GATTTGATAG AGAAAAATGA AAATTTAGAT    1200

GATTTAGATG AAGGAATAGA AAAATCATCA GAAGAATTAT CTGAAGAAAA AATAAAAAAA    1260

GGAAAGAAAT ATGAAAAAAC AAAGGATAAT AATTTTAAAC CAAATGATAA AAGTTTGTAT    1320

GATGAGCATA TTAAAAAATA TAAAAATGAT AAGCAGGTTA ATAAGGAAAA GGAAAAATTC    1380

ATAAAATCAT TGTTTCATAT ATTTGACGGA GACAATGAAA TTTTACAGAT CGTGGATGAG    1440

TTATCTGAAG ATATAACTAA ATATTTTATG AAACTATAAA AGGTTATATA TTT          1493
```

(2) INFORMATION FOR SEQ ID NO:39:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 12 base pairs

```
          (B)  TYPE: nucleic acid
          (C)  STRANDEDNESS: single
          (D)  TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

     (x) PUBLICATION INFORMATION:
          (H)  DOCUMENT NUMBER: WO 92/13884
          (J)  PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:
```

CAAGAACAAC AA   12

(2) INFORMATION FOR SEQ ID NO:40:

```
     (i) SEQUENCE CHARACTERISTICS:
          (A)  LENGTH: 12 base pairs
          (B)  TYPE: nucleic acid
          (C)  STRANDEDNESS: single
          (D)  TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

     (x) PUBLICATION INFORMATION:
          (H)  DOCUMENT NUMBER: WO 92/13884
          (J)  PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:
```

GGTTATATAT TT   12

(2) INFORMATION FOR SEQ ID NO:41:

```
     (i) SEQUENCE CHARACTERISTICS:
          (A)  LENGTH: 1482 base pairs
          (B)  TYPE: nucleic acid
          (C)  STRANDEDNESS: single
          (D)  TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
          (A)  NAME/KEY: CDS
          (B)  LOCATION: 1..1482

     (x) PUBLICATION INFORMATION:
          (H)  DOCUMENT NUMBER: WO 92/13884
          (J)  PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:
```

```
CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG      48
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
  1               5                  10                  15
```

```
TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA          96
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
                20                  25              30

AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA         144
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys
            35                 -40                  45

GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT         192
Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
        50                  55                  60

AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT         240
Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg
65              70                  75                  80

GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA         288
Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg
            85                  90                  95

CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG         336
Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
            100                 105                 110

AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA         384
Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln
            115                 120                 125

GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA         432
Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu
    130                 135                 140

CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA         480
Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu
145                 150                 155                 160

GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT         528
Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp
                165                 170                 175

TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC         576
Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser
            180                 185                 190

GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA         624
Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln
            195                 200                 205

AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA         672
Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg
210                 215                 220

AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA         720
Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu
225                 230                 235                 240
```

```
GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT        768
Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr
            245                 250                 255

ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA        816
Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg
            260                 265                 270

GAT TCC AAG GAA ATA TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT        864
Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile
            275                 280                 285

ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA        912
Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu
            290                 295                 300

GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT        960
Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
305                 310                 315                 320

GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT       1008
Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val
            325                 330                 335

AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT       1056
Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr
            340                 345                 350

GAC GAT TCA TTA ATA GAT GAA GAA GAA GAT GAT GAA GAC TTA GAC GAA       1104
Asp Asp Ser Leu Ile Asp Glu Glu Glu Asp Asp Glu Asp Leu Asp Glu
            355                 360                 365

TTT AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA       1152
Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile
    370                 375                 380

GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA       1200
Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu
385                 390                 395                 400

GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA       1248
Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu
            405                 410                 415

GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT       1296
Glu Lys Ile Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys Asp Asn Asn
            420                 425                 430

TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT       1344
Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr
            435                 440                 445

AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA       1392
Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser
            450                 455                 460
```

```
TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC GTG GAT      1440
Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp
465             470             475             480

GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA             1482
Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu
                485             490
```

(2) INFORMATION FOR SEQ ID NO:42:

       (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 12 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single
           (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)

      (ix) FEATURE:
           (A) NAME/KEY: CDS
           (B) LOCATION: 1..12

       (x) PUBLICATION INFORMATION:
           (H) DOCUMENT NUMBER: WO 92/13884
           (J) PUBLICATION DATE: 20-AUG-1992

      (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

```
AAG GTT ATA TAT                                                       12
Lys Val Ile Tyr
  1
```

(2) INFORMATION FOR SEQ ID NO:43:

       (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 12 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single
           (D) TOPOLOGY: linear

      (ii) MOLECULE TYPE: DNA (genomic)

       (x) PUBLICATION INFORMATION:
           (H) DOCUMENT NUMBER: WO 92/13884
           (J) PUBLICATION DATE: 20-AUG-1992

      (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

```
CAAGAACAAC AA                                                         12
```

(2) INFORMATION FOR SEQ ID NO:44:

       (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 12 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single

```
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

     (x) PUBLICATION INFORMATION:
         (H) DOCUMENT NUMBER: WO 92/13884
         (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:
```

ATGAAACTAT AA   12

(2) INFORMATION FOR SEQ ID NO:45:

```
     (i) SEQUENCE CHARACTERISTICS:
         (A) LENGTH: 1482 base pairs
         (B) TYPE: nucleic acid
         (C) STRANDEDNESS: single
         (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
         (A) NAME/KEY: CDS
         (B) LOCATION: 1..1482

     (x) PUBLICATION INFORMATION:
         (H) DOCUMENT NUMBER: WO 92/13884
         (J) PUBLICATION DATE: 20-AUG-1992

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:
```

```
CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG         48
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
 1               5                   10                  15

TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA         96
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
             20                  25                  30

AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA        144
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys
         35                  40                  45

GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT        192
Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
     50                  55                  60

AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT        240
Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg
 65                  70                  75                  80

GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA        288
Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg
             85                  90                  95
```

```
CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG          336
Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
            100                 105                 110

AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA          384
Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln
            115                 120                 125

GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA          432
Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu
    130                 135                 140

CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA          480
Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu
145                 150                 155                 160

GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT          528
Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp
                165                 170                 175

TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC          576
Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser
            180                 185                 190

GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA          624
Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln
        195                 200                 205

AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA          672
Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg
    210                 215                 220

AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA          720
Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu
225                 230                 235                 240

GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT          768
Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr
            245                 250                 255

ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA          816
Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg
            260                 265                 270

GAT TCC AAG GAA ATG TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT          864
Asp Ser Lys Glu Met Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile
            275                 280                 285

ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA          912
Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu
    290                 295                 300

GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT          960
Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
305                 310                 315                 320
```

```
GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT      1008
Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val
            325             330             335

AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT      1056
Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr
            340             345             350

GAC GAT TCA TTA ATA GAT GAA GAA GAA GAT GAT GAA GAC TTA GAC GAA      1104
Asp Asp Ser Leu Ile Asp Glu Glu Glu Asp Asp Glu Asp Leu Asp Glu
            355             360             365

TTT AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA      1152
Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile
            370             375             380

GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA      1200
Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu
385             390             395             400

GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA      1248
Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu
            405             410             415

GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT      1296
Glu Lys Ile Lys Lys Gly Lys Lys Tyr Glu Lys Thr Lys Asp Asn Asn
            420             425             430

TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT      1344
Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr
            435             440             445

AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA      1392
Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser
    450             455             460

TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC GTG GAT      1440
Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp
465             470             475             480

GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA            1482
Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu
            485             490
```

(2) INFORMATION FOR SEQ ID NO:46:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 12 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: CDS